



Congressional Budget Office

June 24, 2016

Communicating Budgetary and Economic Information, With Style, at the Congressional Budget Office

VisCom 2016 Conference
Snowbird, Utah

Maureen Costantino
Visual Information and Publications Specialist

What We Are

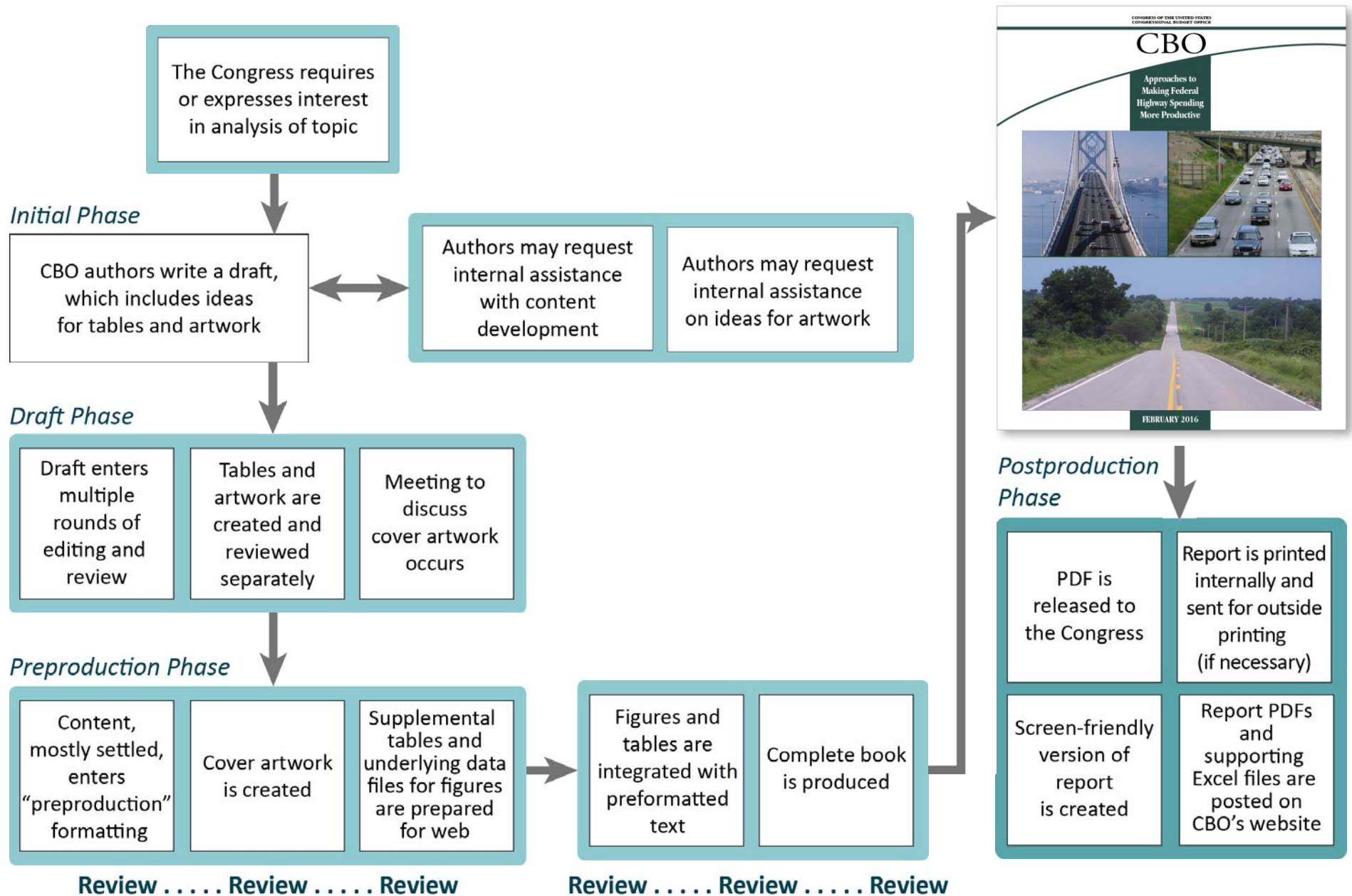
- CBO is a United States government agency that was created by the Congressional Budget and Impoundment Control Act of 1974.
- It provides analysis of budgetary and economic issues that is **objective** and **impartial** to the U.S. Congress. The agency is strictly **nonpartisan**.

Report Production at CBO

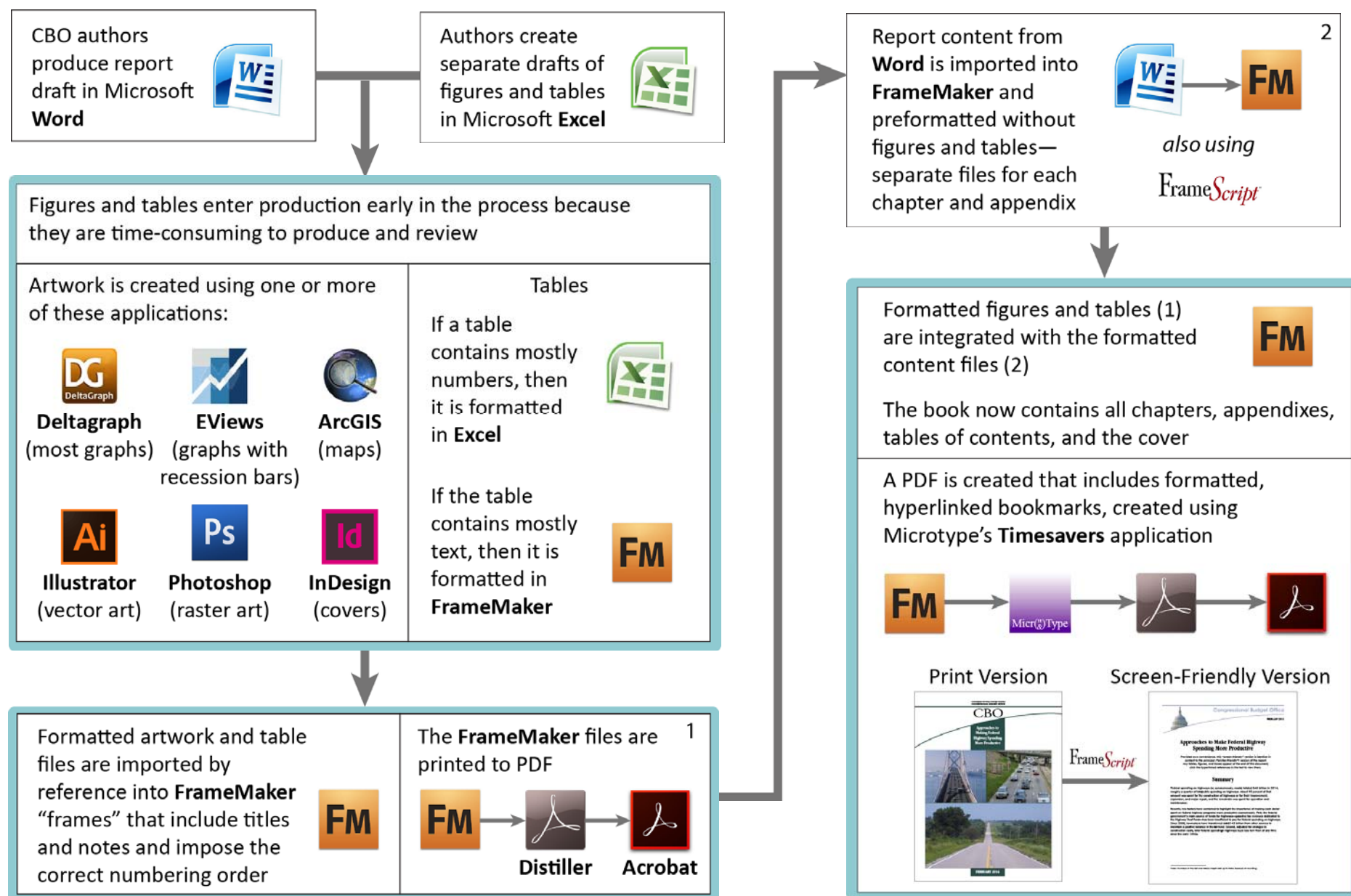
Publishing Reports at CBO

- Publishing high-quality content is a demanding job, particularly so because the agency is small.
- Reports entering production are often on a tight schedule.
- Accuracy and speed are essential.
- Products range from stand-alone graphics to full reports.

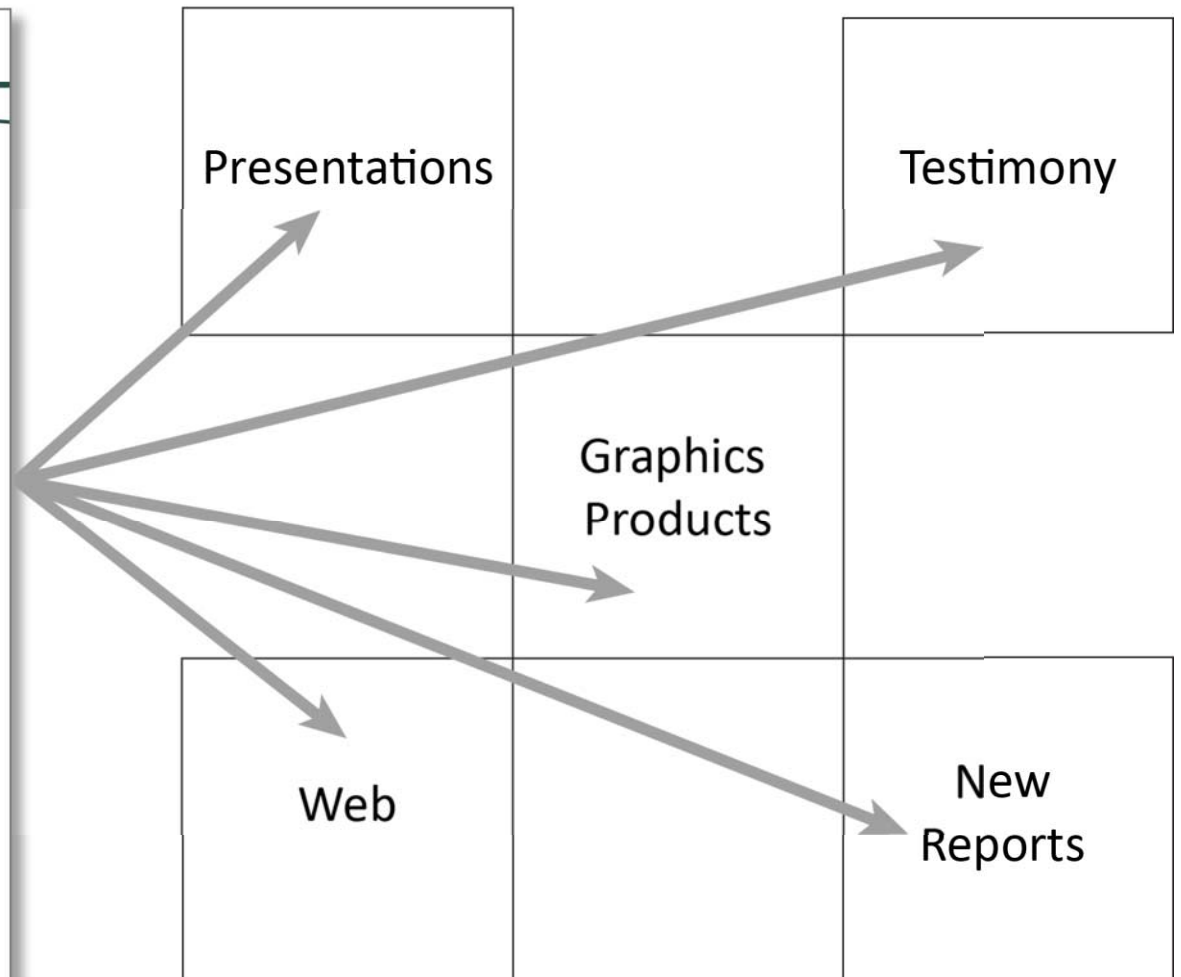
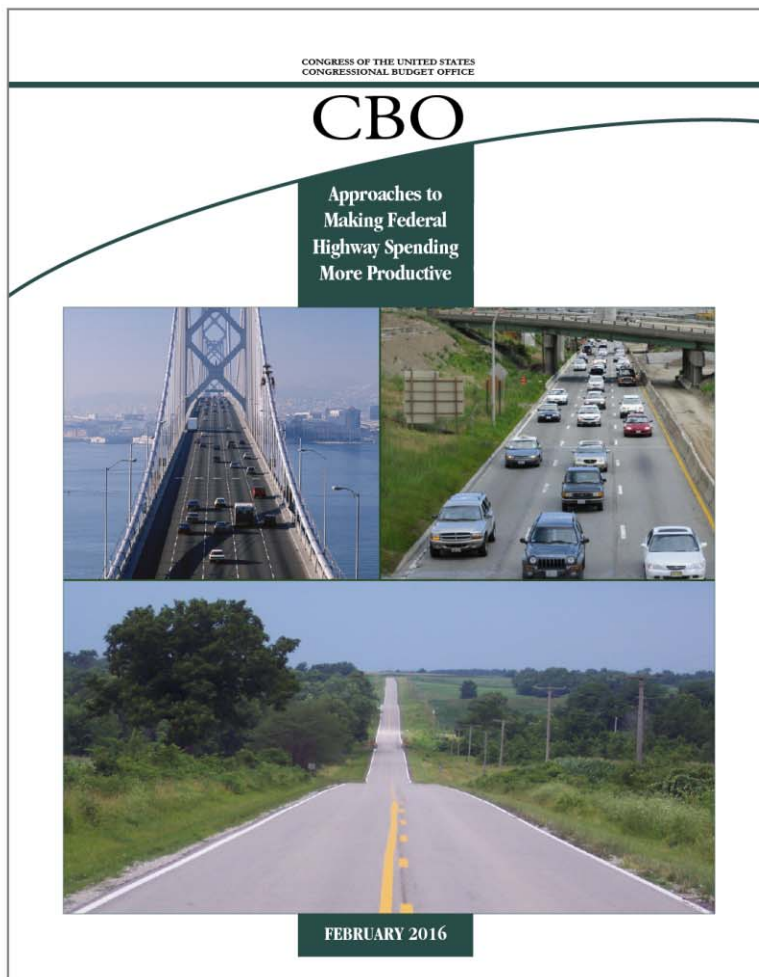
Bird's Eye View of the Report Process



Production Process: The Tools of Our Trade



Components of Reports Are Often Repurposed



Graphics at CBO

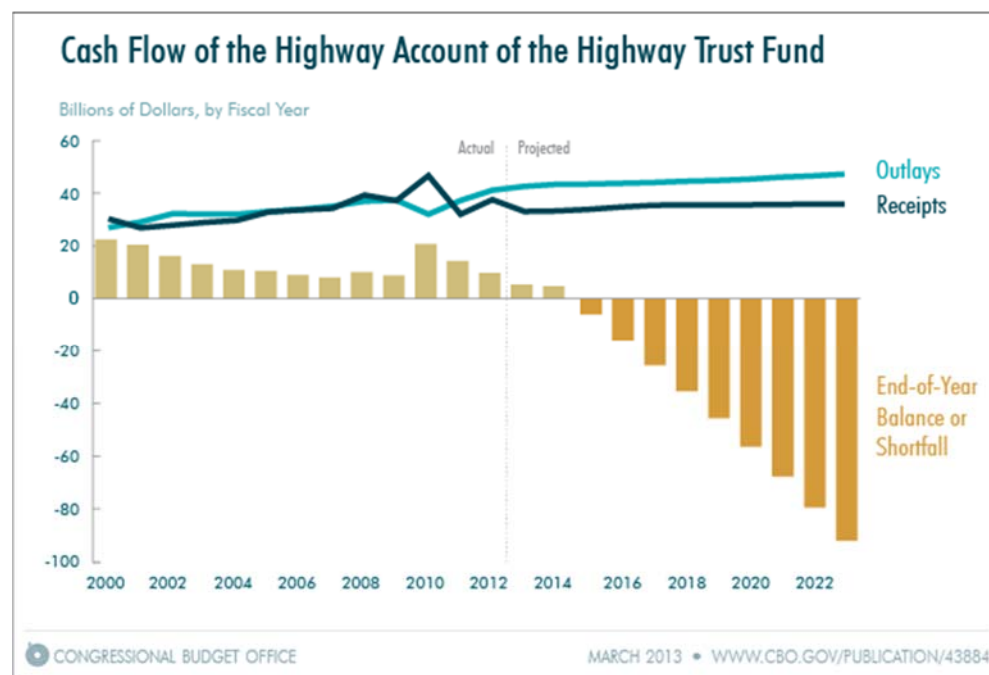
Graphics

- Graphics are created for reports. Many are repurposed to be used in other publications related to the same topic; some stand alone.

- Possible formats:

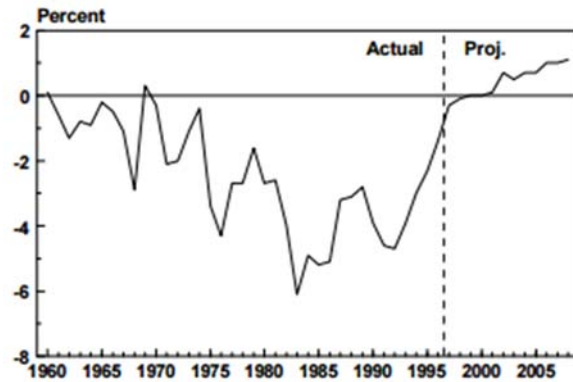
- Website home page announcement of report release; the report landing page
- Blog post
- Slide deck
- Presentation
- Infographic
- Snapshot
- Conference poster

Sample Snapshot



An Evolution of Style: Graphs

Summary Figure 1.
Deficit (-) or Surplus as a Share of Gross Domestic Product (By fiscal year)

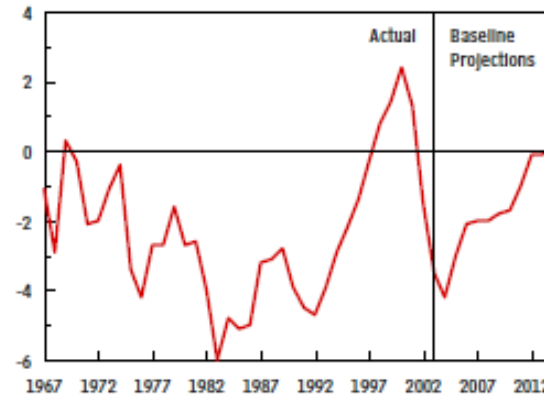


SOURCE: Congressional Budget Office.

1998

Figure 1-1.
The Total Deficit or Surplus
as a Share of GDP, 1967 to 2014

(Percentage of GDP)



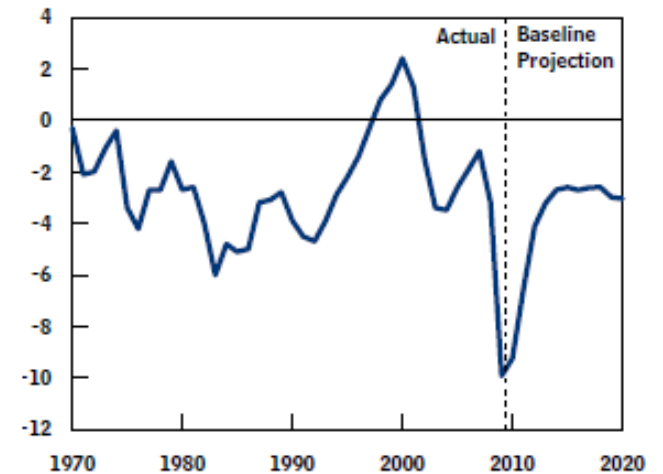
Source: Congressional Budget Office.

2003

Figure 1-1.

The Total Deficit or Surplus,
1970 to 2020

(Percentage of gross domestic product)



Source: Congressional Budget Office.

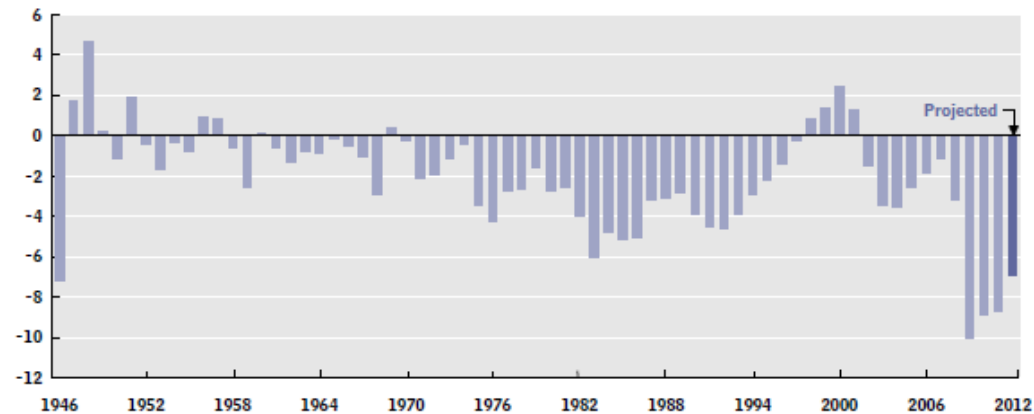
2010

An Evolution of Style: Graphs (Continued)

Figure 1-1.

Deficits or Surpluses Since 1946

(Percentage of gross domestic product)



Source: Congressional Budget Office.

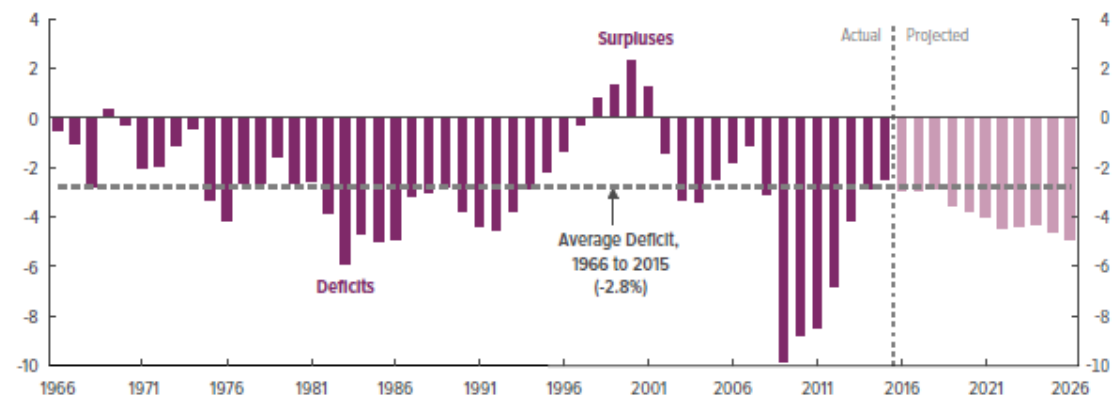
2012

Figure 1-1.

Total Deficits or Surpluses

CBO projects that deficits will exceed 4 percent of GDP by 2022 as mandatory spending and interest payments rise while revenues remain relatively flat.

Percentage of Gross Domestic Product



Source: Congressional Budget Office.

2016

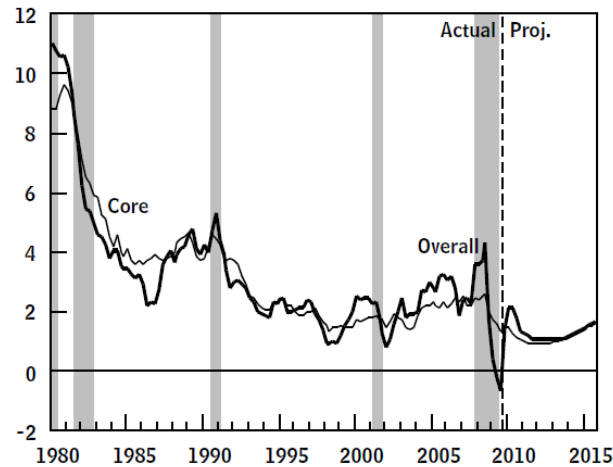
Less Is More

2010

Figure 2-12.

Inflation

(Percentage change from previous year)



Sources: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Notes: The overall inflation measure is the price index for personal consumption expenditures. The core rate excludes prices for food and energy.

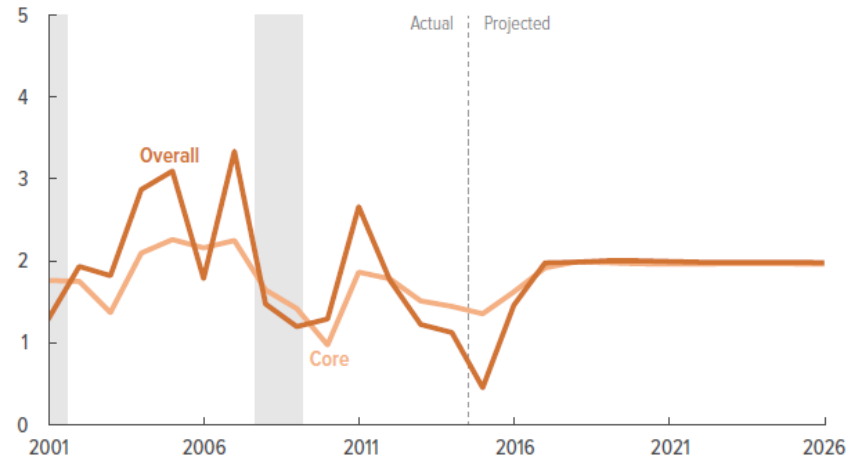
Data are quarterly and are plotted through the fourth quarter of 2015.

2016

Figure 2-10.

Inflation

Percentage Change in Prices



CBO anticipates that inflation will rise to the Federal Reserve's goal of 2 percent over the next two years, which is consistent with CBO's projection of the diminishing slack in the economy.

Source: Congressional Budget Office, using data from the Bureau of Economic Analysis.

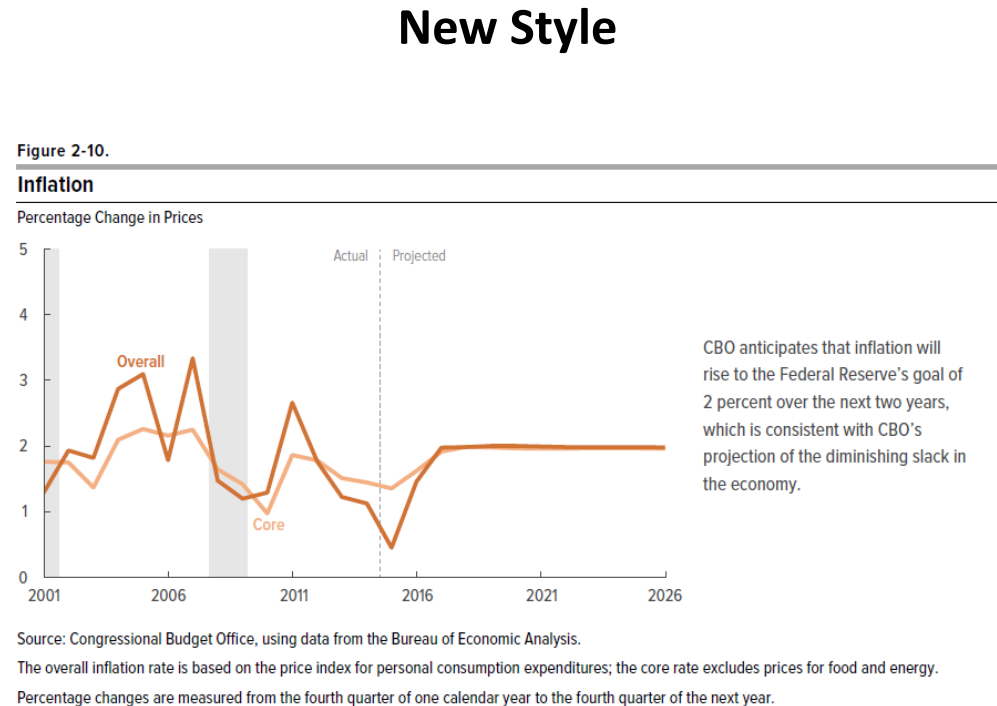
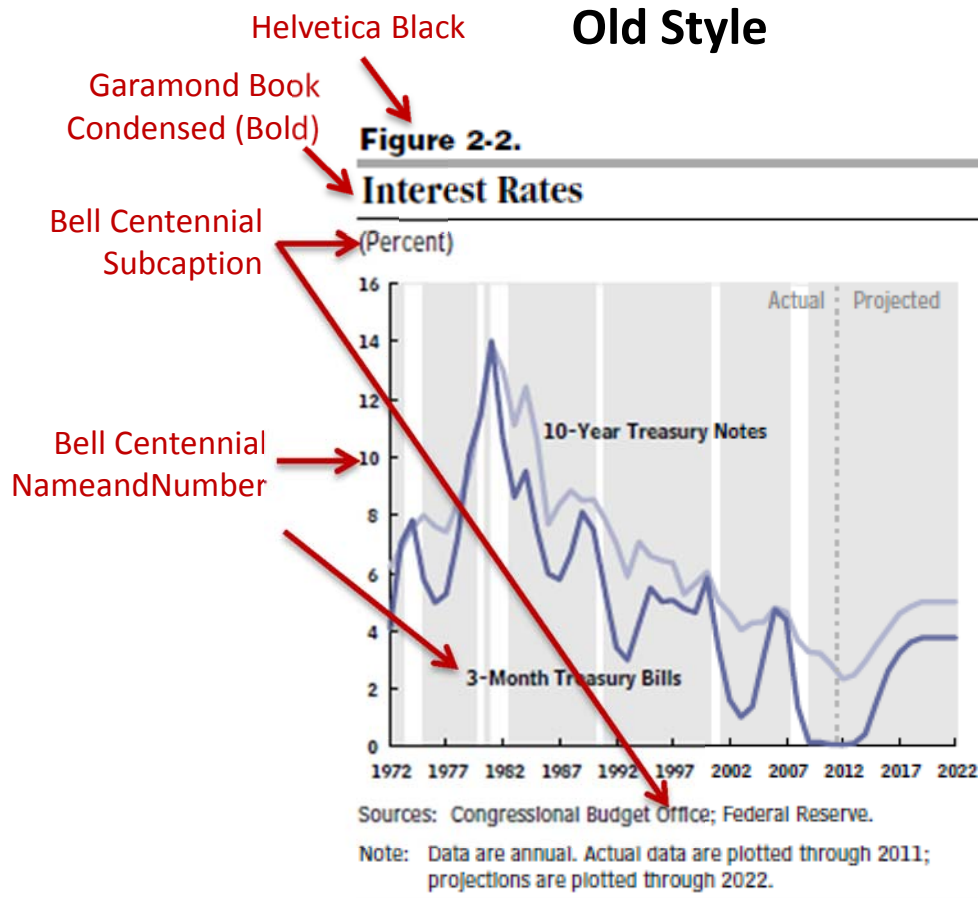
The overall inflation rate is based on the price index for personal consumption expenditures; the core rate excludes prices for food and energy.

Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next year.

What changed?

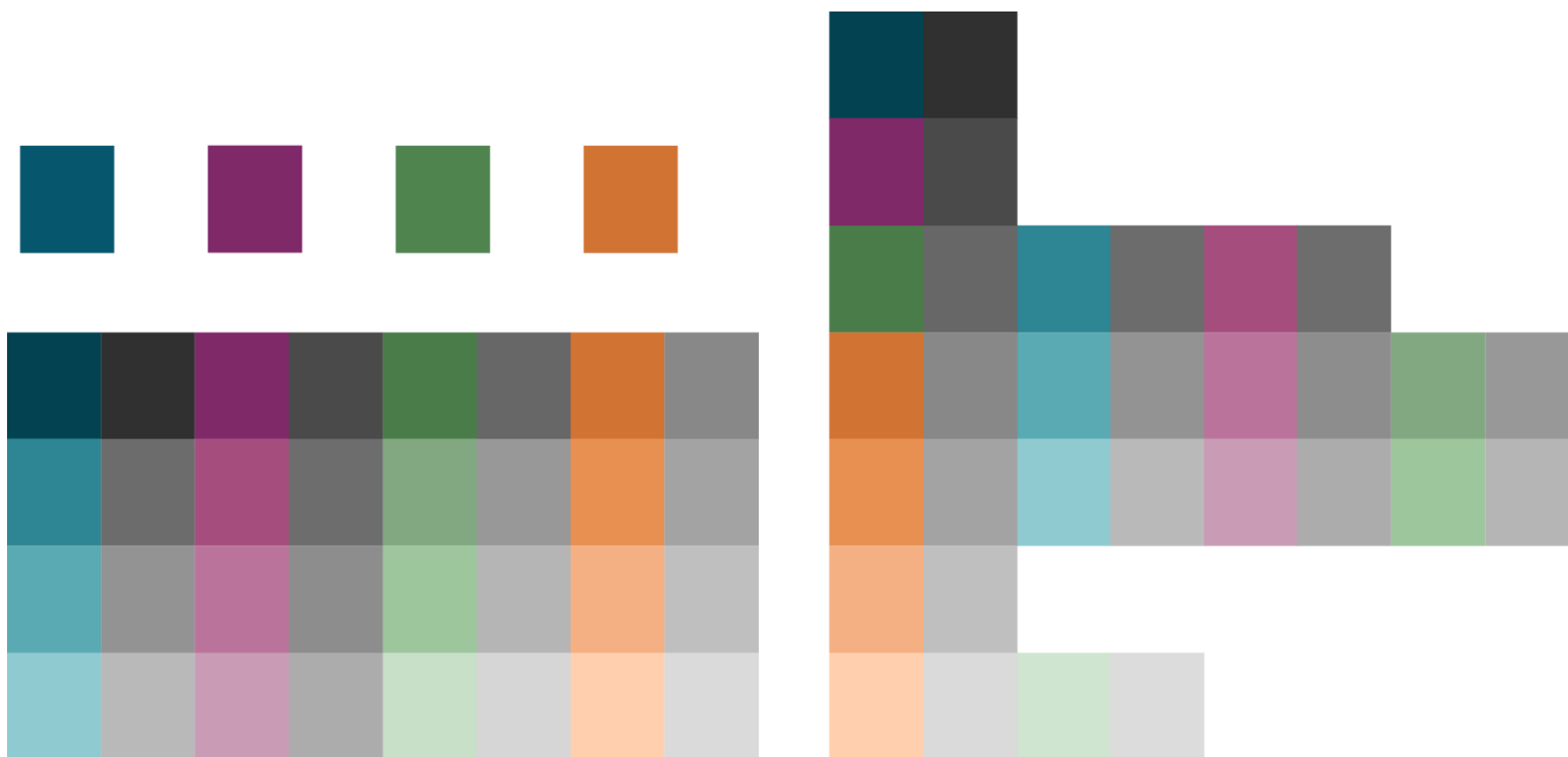
- Color used meaningfully
- Data plotted annually instead of quarterly when possible
- Upper and right border lines gone
- No minor tick marks; shorter, less prominent tick marks
- Smaller point sizes for type
- Gray color for axis lines and Actual/Projected line
- Gray color for numbers and supporting text
- Lighter gray for recession bars
- Smaller point sizes for titles
- No parentheses around units of measure
- All notes (including Source) flush left; the word "Notes" gone
- Introduction of captions where useful

Fewer Fonts



Proxima Nova family used for
all graphics and tables, including titles

Color Is Key



- Use of color must have meaning within a report
- Colors must map to shades of gray that make elements of a graphic in close proximity easily distinguishable when printed in black and white

Informal CBO Conventions

Blue = spending

Green = revenues

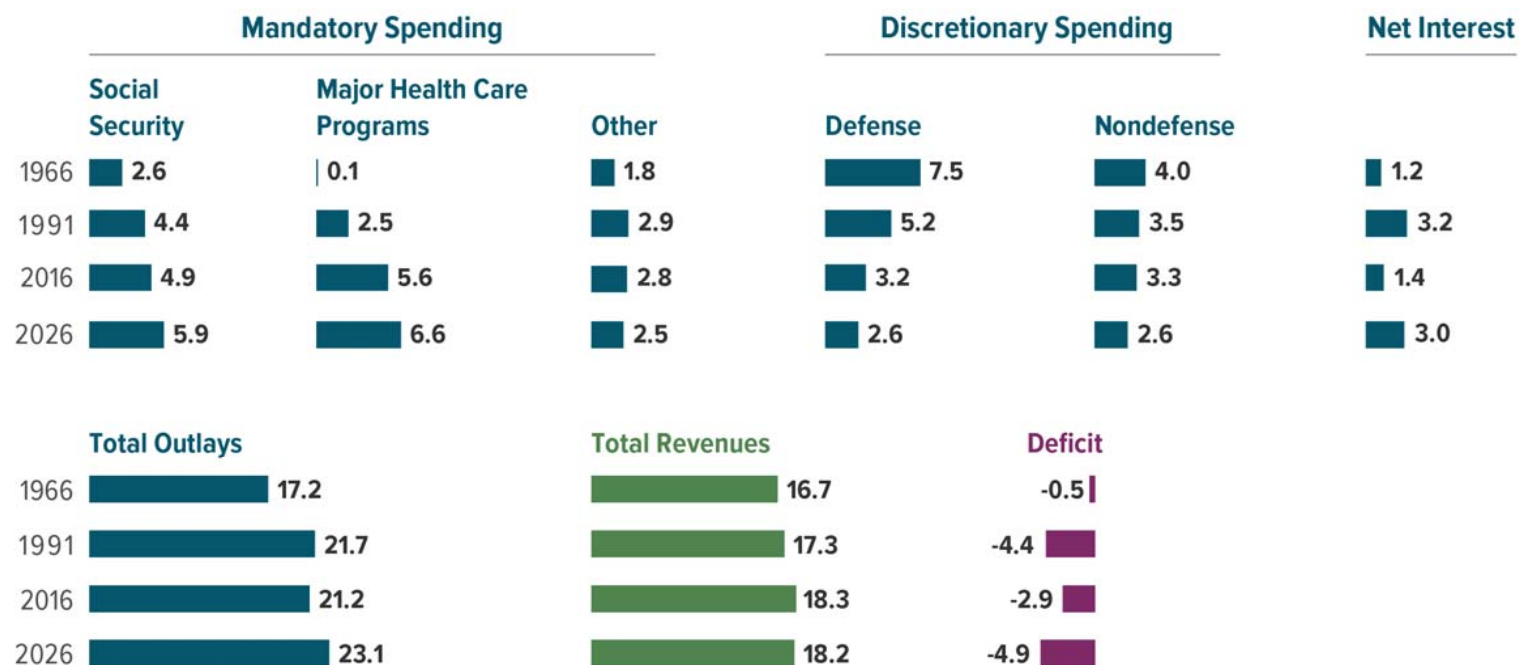
Purple = debt

Orange = anything else

Slide Deck: *The Budget and Economic Outlook*

Spending and Revenues Projected in CBO's Baseline, Compared With Actual Values in 1966 and 1991

Percentage of GDP



Spending for the government's benefit programs—including Social Security and the major health care programs—is now a much larger proportion of spending, and appropriations for defense and other programs are much smaller.

16

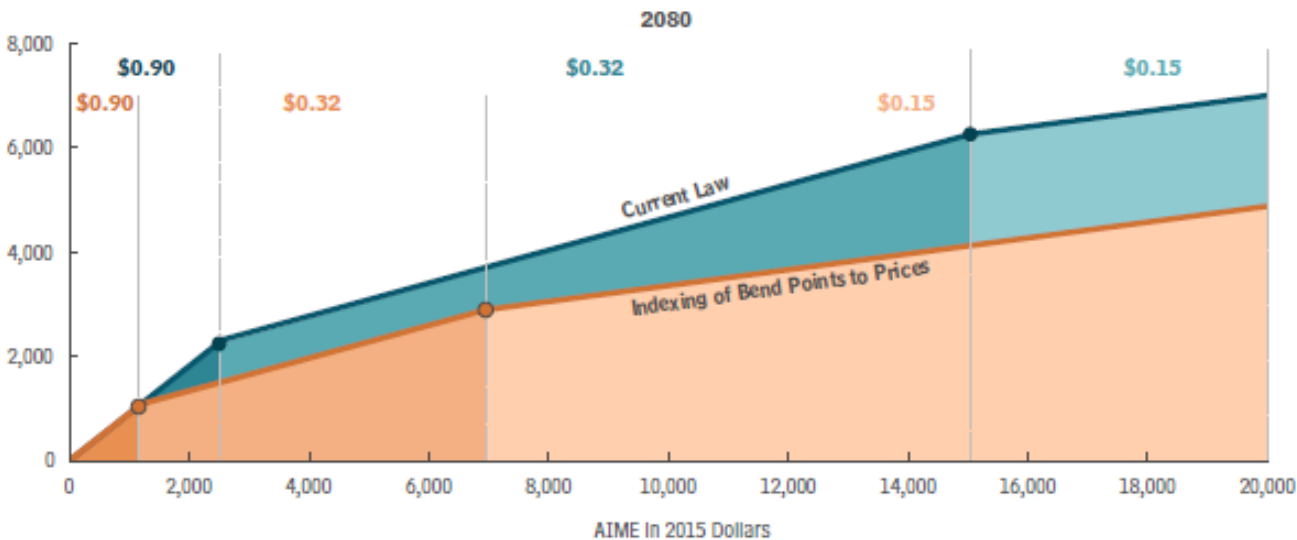
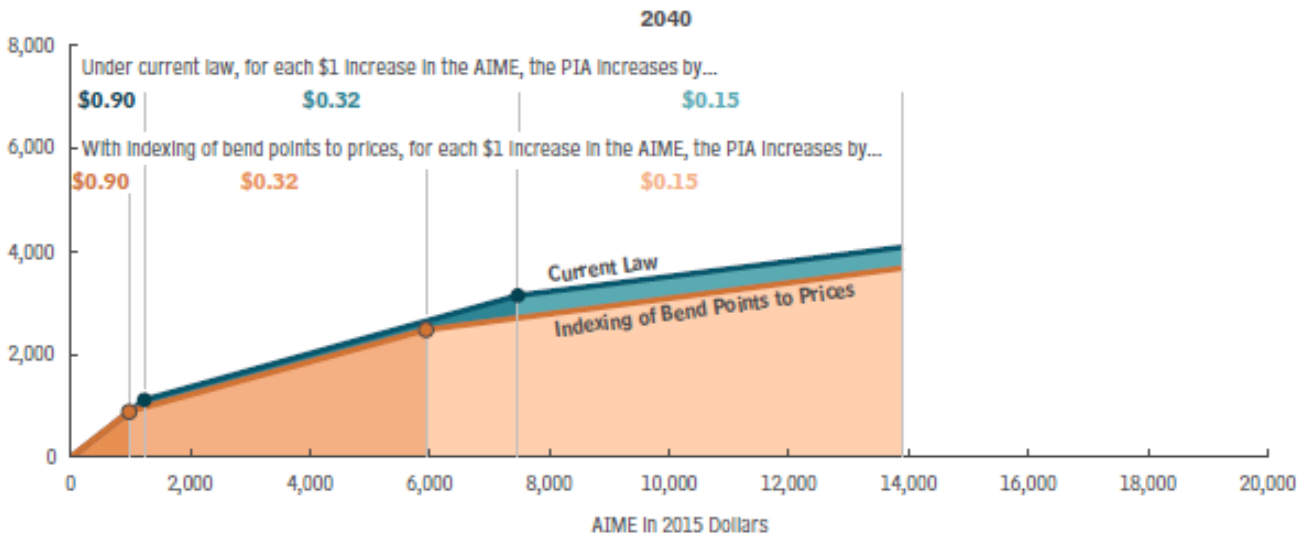
www.cbo.gov/publication/51182

Telling the Story With Graphics: Social Security Options

Figure 9.

Calculating the PIA Using Indexing of Bend Points to Prices (Option 21)

PIA in 2015 Dollars



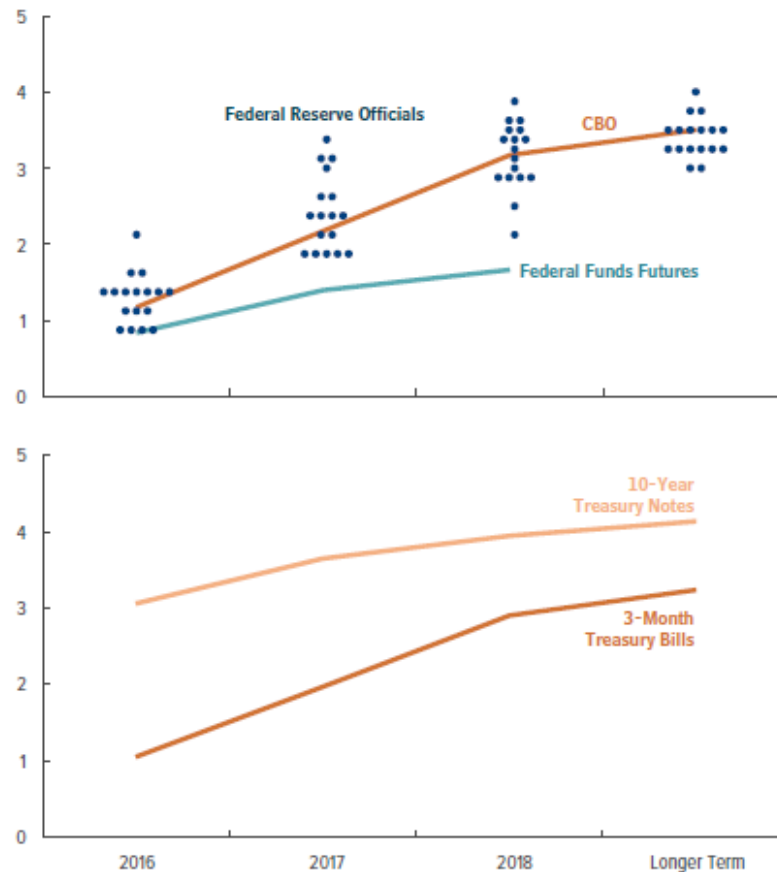
www.cbo.gov/publication/51011

Judicious Use of Captions: Forecasts of Interest Rates

Figure 2-2.

Forecasts of Interest Rates by CBO, by Federal Reserve Officials, and Derived From Federal Funds Futures

Percent



CBO's forecast for the **federal funds rate** is below forecasts by most Federal Reserve officials for the next two years. CBO's forecast places some weight on the lower path for interest rates implied by prices in the futures market for federal funds.

CBO projects that **interest rates on Treasury securities** will rise steadily over the next few years, reflecting continued economic improvement and increases in the federal funds rate.

Sources: Congressional Budget Office; Bloomberg; Board of Governors of the Federal Reserve System, "Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents, December 2015" (December 16, 2015), <http://go.usa.gov/cUkyR>.

The 17 data points for each year in the top panel represent forecasts made by members of the Federal Reserve Board and presidents of the Federal Reserve Banks in December 2015. Forecasts are expected values at the end of the year. For the Federal Reserve, longer-term projections are described as the value at which each variable would settle under appropriate monetary policy and in the absence of further shocks to the economy.

The forecast from the futures market for federal funds is dated December 31, 2015, corresponding to the last observation used for CBO's forecast. Values for 2016 and 2017 are averages for the fourth quarter of the year; the value for 2018 is the average of July and August of 2018, the last values available at the time of the forecast.

CBO's forecast values are for the fourth quarter of the year shown. CBO's forecast for the longer term is the value for 2026.

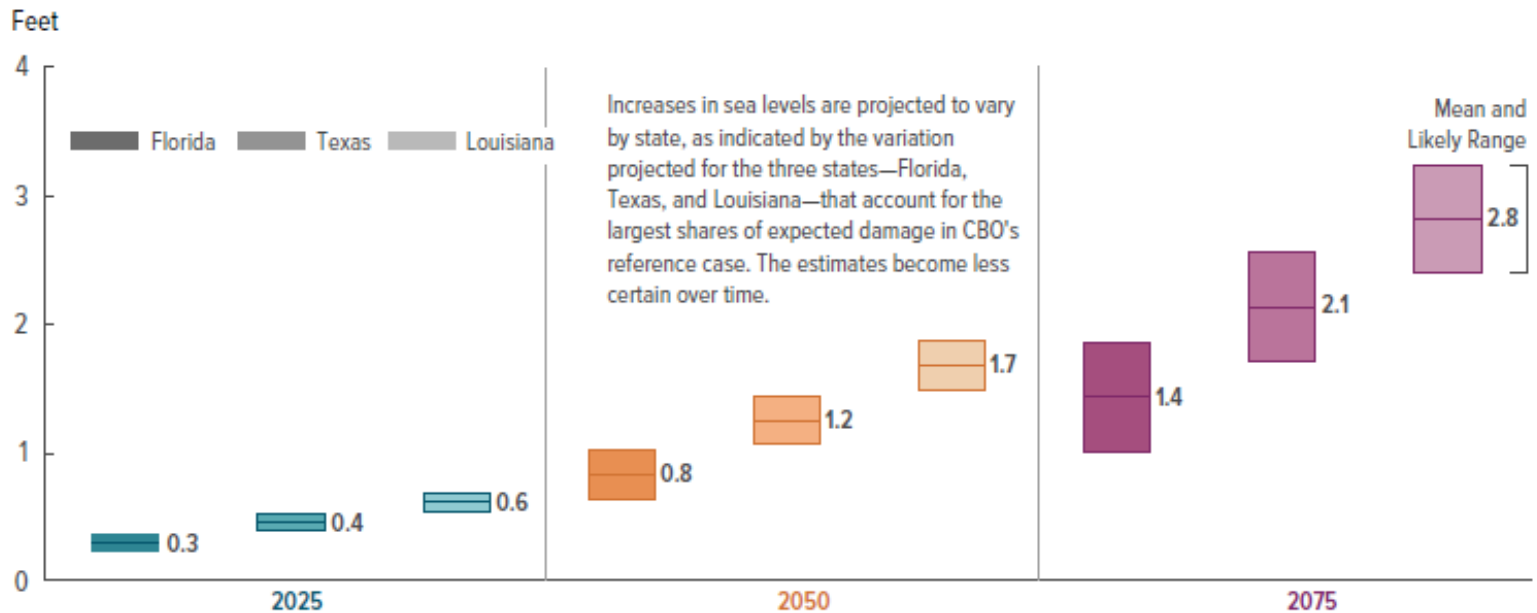
www.cbo.gov/publication/51129

Visualizing Complex Topics

state	year	quantile	slr
FL	2025	0.5	
FL	2025	5	
FL	2025	16.7	
FL	2025	33.3	
FL	2025	50	
FL	2025	66.7	
FL	2025	83.3	
FL	2025	95	
FL	2025	99.5	
FL	2050	0.5	
FL	2050	5	
FL	2050	16.7	
FL	2050	33.3	
FL	2050	50	
FL	2050	66.7	
FL	2050	83.3	
FL	2050	95	
FL	2050	99.5	
FL	2075	0.5	
FL	2075	5	
FL	2075	16.7	
FL	2075	33.3	
FL	2075	50	
FL	2075	66.7	
FL	2075	83.3	
FL	2075	95	
FL	2075	99.5	
TX	2025	0.5	
TX	2025	5	
TX	2025	16.7	
TX	2025	33.3	
TX	2025	50	
TX	2025	66.7	
TX	2025	83.3	
TX	2025	95	
TX	2025	99.5	
TX	2050	0.5	
TX	2050	5	
TX	2050	16.7	
TX	2050	33.3	
TX	2050	50	
TX	2050	66.7	
TX	2050	83.3	
TX	2050	95	
TX	2050	99.5	

Figure 2.

Projected Rise of Sea Levels in Florida, Texas, and Louisiana in Selected Future Years



Source: Congressional Budget Office, based on data provided by Risk Management Solutions and on Robert E. Kopp and others, "Probabilistic 21st and 22nd Century Sea-Level Projections at a Global Network of Tide-Gauge Sites," *Earth's Future*, vol. 2, no. 8 (August 2014; corrected, October 2014), <http://onlinelibrary.wiley.com/doi/10.1002/2014EF000239/full>.

CBO's estimate of expected annual hurricane damage at present—the "reference case"—is based on estimates of the current frequency of hurricanes, current state-specific sea levels, and the current valuation of property exposed to hurricanes.

The "likely range" includes the middle two-thirds of the distribution of estimates from CBO's simulations.

TX	2050	0.5							
TX	2050	5	0.940	0.589256	LA	2075	83.3	3.228	0.520055
TX	2050	16.7	1.056	1.329158	LA	2075	95	3.642	0.108707
TX	2050	33.3	1.158	1.963958	LA	2075	99.5	4.713	2.08E-05
TX	2050	50	1.238	2.156445				1.244	

www.cbo.gov/publication/51182

Chartbook: *Trends in Joblessness and the Incarceration of Young Men*

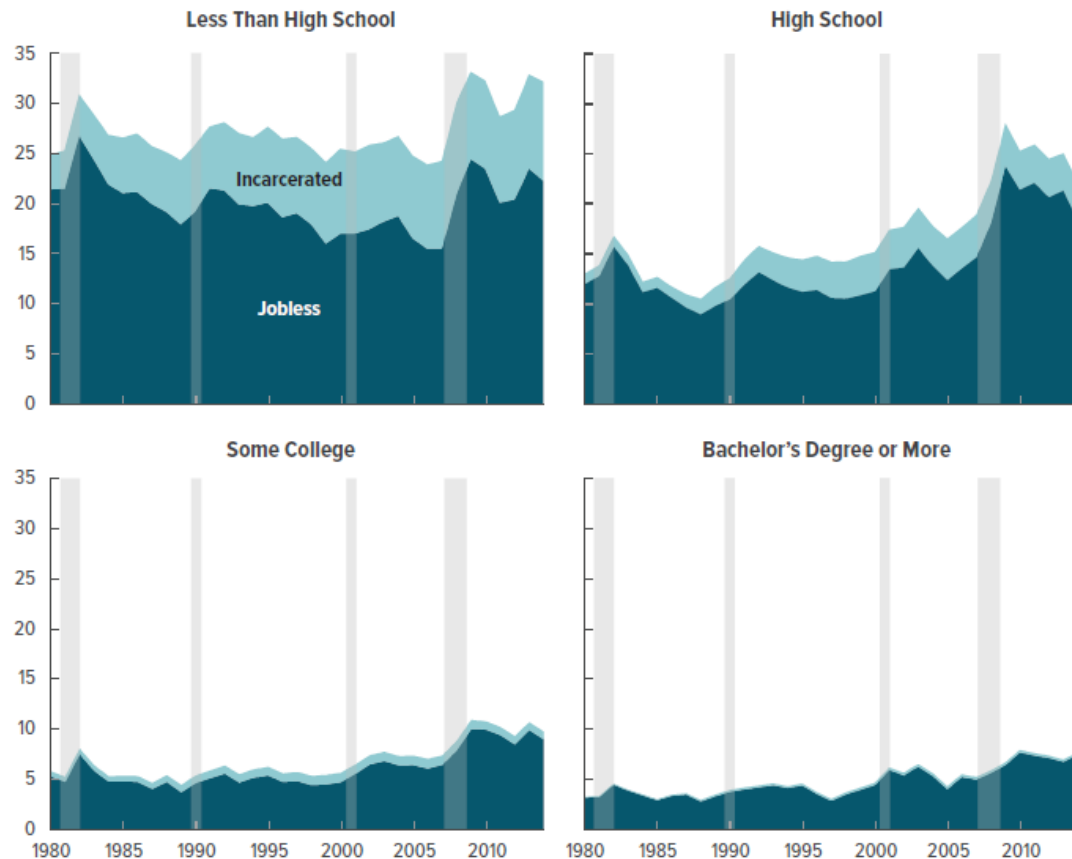
JOBLESSNESS AND INCARCERATION AMONG YOUNG MEN, BY EDUCATIONAL ATTAINMENT

TRENDS IN THE JOBLESSNESS AND INCARCERATION OF YOUNG MEN

Exhibit 3.

Share of Young Men With Various Levels of Education Who Were Jobless and Share Who Were Incarcerated

Percent



Source: Congressional Budget Office, using data from the Census Bureau, the Bureau of Justice Statistics, and the Department of Defense.

People are counted as Jobless if they are neither in school nor working, whether or not they are looking for work.

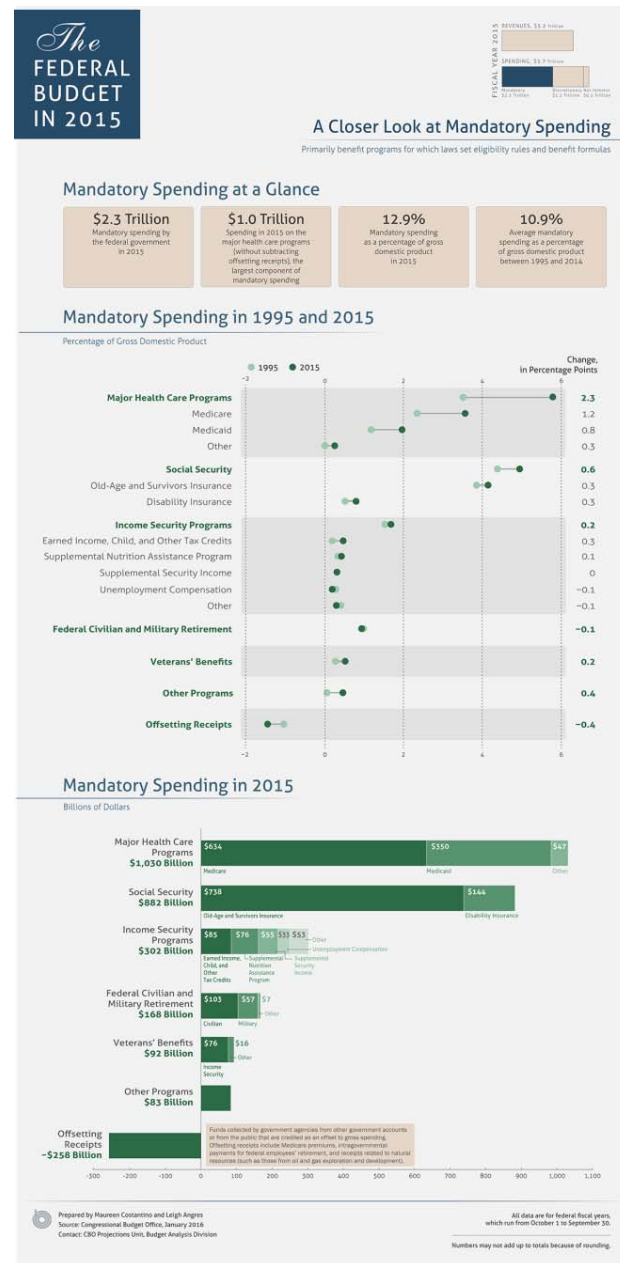
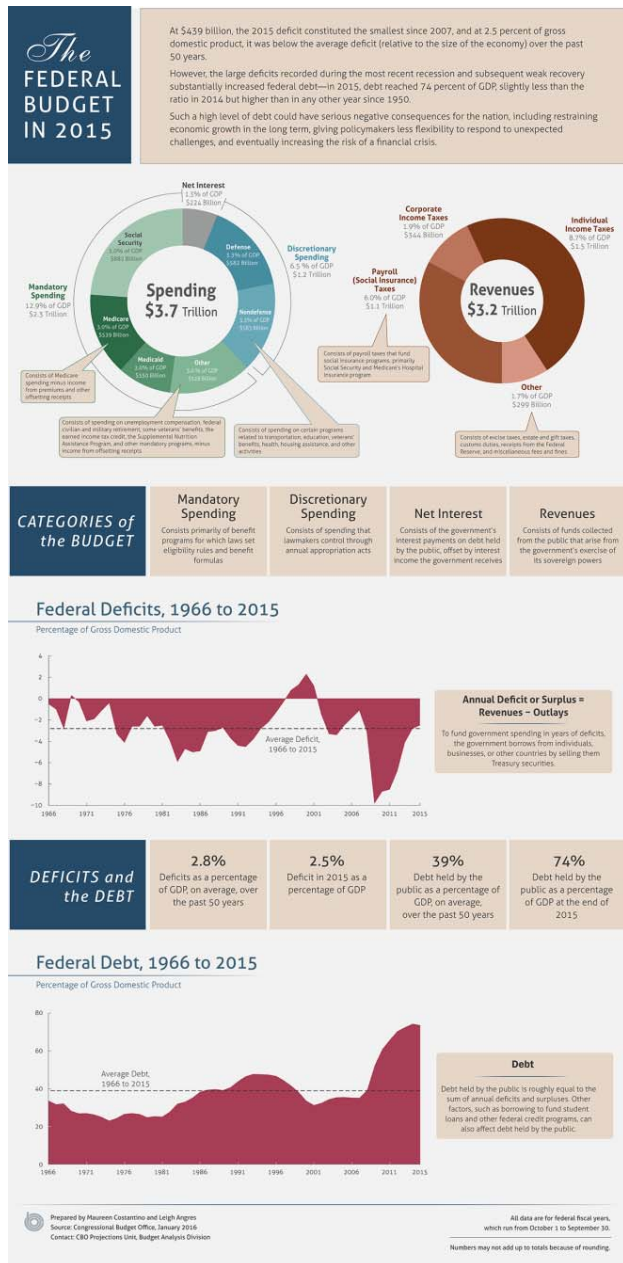
Shaded vertical bars indicate periods of recession, which extend from the peak of a business cycle to its trough. Tick marks correspond to October of the year indicated.

Joblessness increased substantially among young men during the recent recession, and it remained relatively high during the subsequent slow recovery. The share of young men without a high school education who were jobless in 2014 was roughly on par with the share in 1980. For young men with at least a high school education, however, joblessness was higher in 2014 than it had been at any time between 1980 and the recession.

The share of young men with a high school education or less who were incarcerated increased substantially during the 1980s and 1990s. In 1980, about 3 percent of young men without a high school education were incarcerated; in 1999, about 8 percent were. Over the same period, the rate of incarceration for young men with a high school education rose from 1 percent to 4 percent. For both groups, however, the rate did not change significantly between 2000 and 2014. And incarceration rates for young men with at least some college education did not change substantially during the 35-year period. ♦

www.cbo.gov/publication/51495

Stand-Alone Infographic: *The Federal Budget*



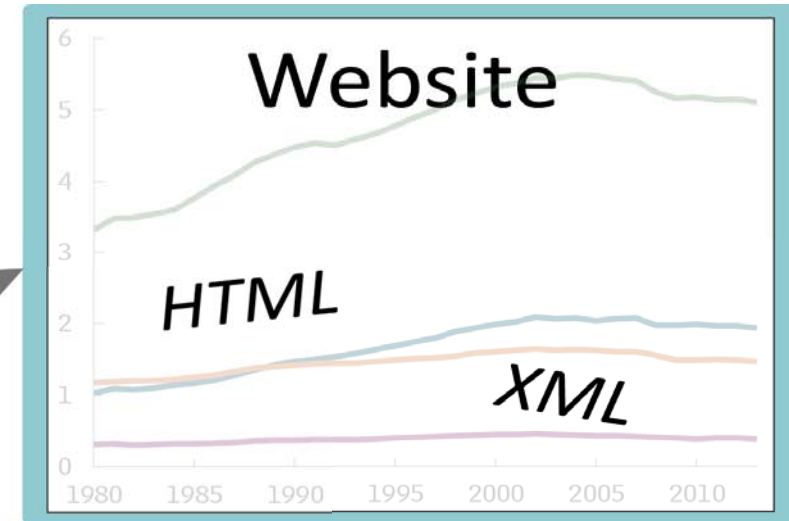
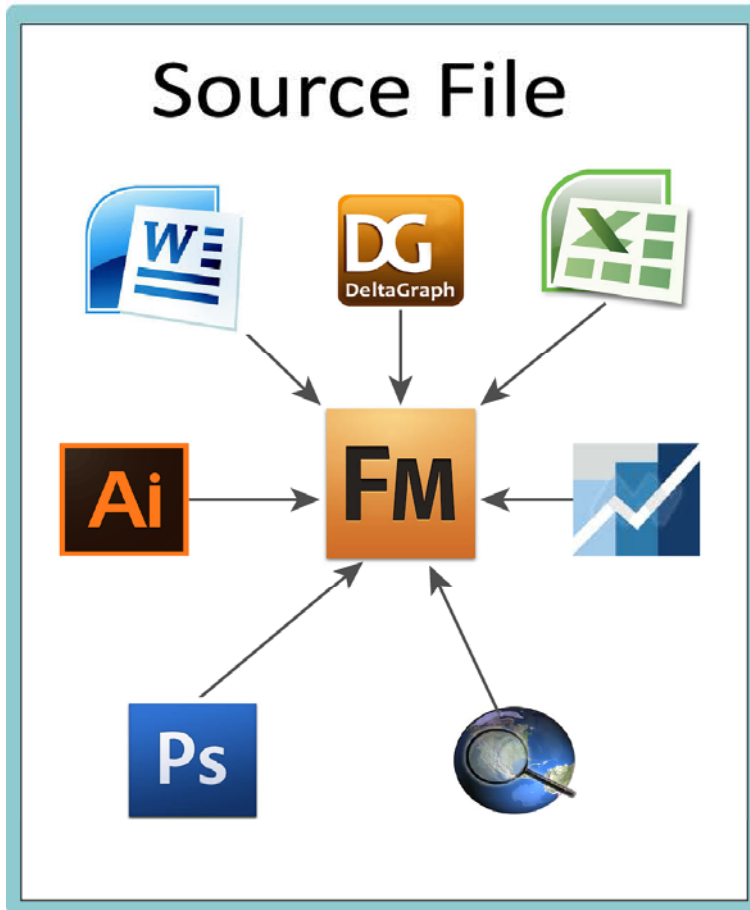
Do Judge a Book by Its Cover



Who for What?

- Content specialists
- Editors
- Graphic artists
- Internal and independent reviewers
- Production specialists
- Proofreaders
- Web specialists

What's in CBO's Publishing Future?



Smart Phone

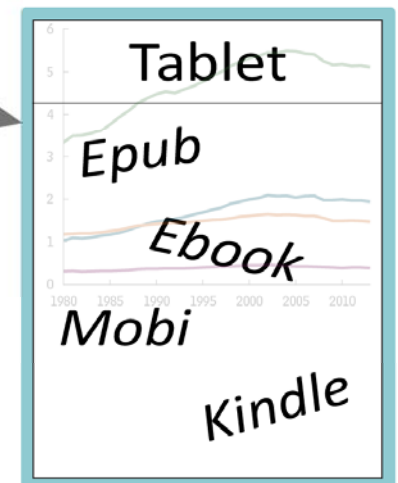
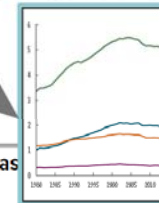


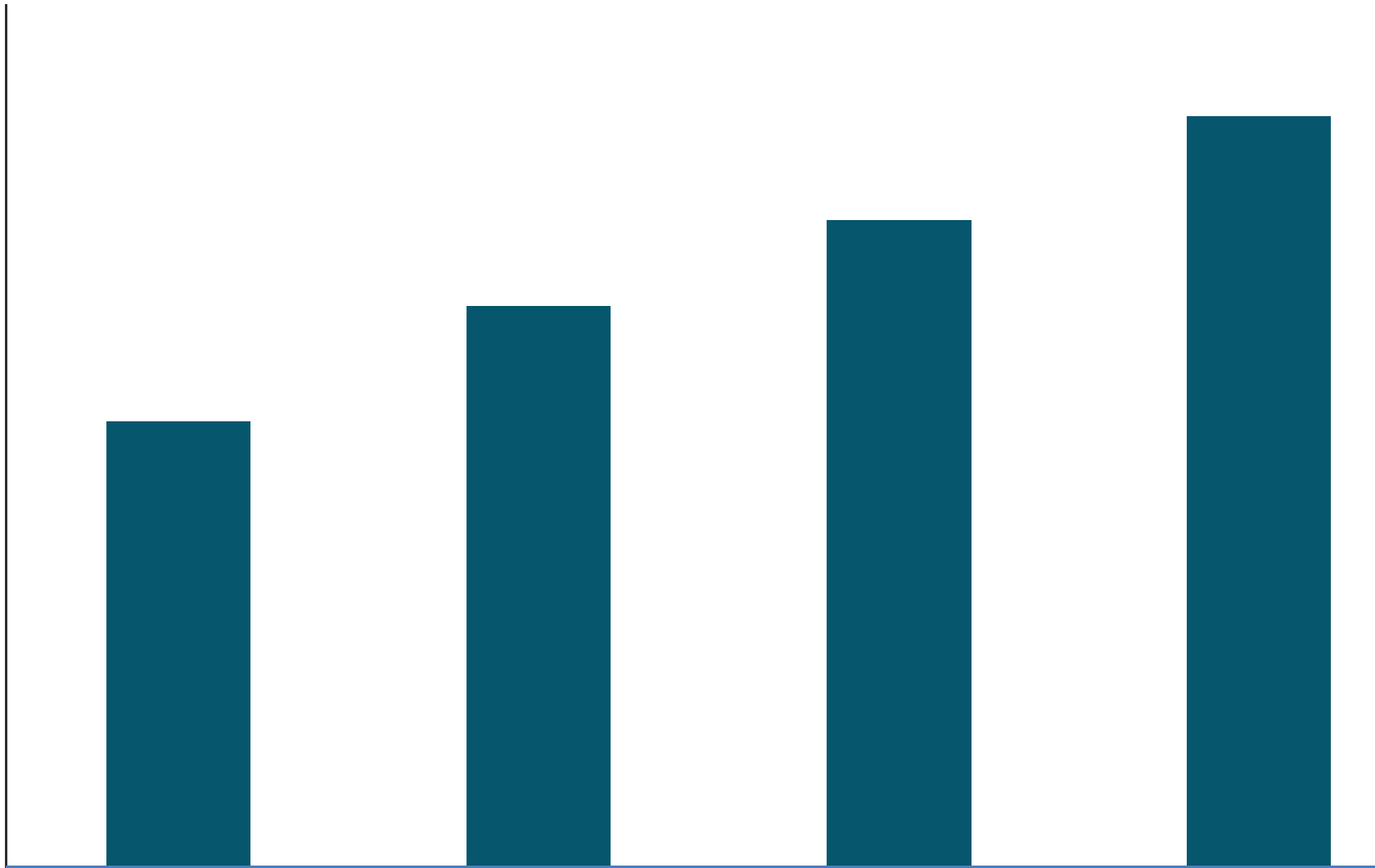
Table 1.

Estimates of Expected Damage in 2075, Based on Predictions of Hurricane Frequency by Two Researchers

Percentage of GDP

Researcher	Mean	Likely Range		Width
		Low End	High End	
Knutson	0.21	0.10	0.34	0.24
Emanuel	0.22	0.17	0.26	0.09
Both	0.22	0.15	0.31	0.16

Interactive Graphics?



Bibliography

The list below provides links to a few of the people and organizations that have in some way influenced the direction and growth of our graphics initiative:

- *The Economist*, <http://economist.com>
- *The Dallas Morning News* Graphics Stylebook, https://knightcenter.utexas.edu/mooc/file/tdmn_graphics.pdf
- PolicyViz, <http://policyviz.com/>
- The Knight Center, knightcenter.utexas.edu/
- Stephen Few, www.perceptualedge.com/
- *The New York Times*, flowingdata.com/tag/new-york-times/
- Mark Simonson, www.marksimonson.com/fonts/view/proxima-nova
- Edward Tufte, www.edwardtufte.com/tufte/

Congressional Budget Office, www.cbo.gov